



If you have a question about the Edwards Air Force Base Environmental Management program, you may address it to Stakeholders Forum, Attn: Gary Hatch or Miriam Harmon, 5 E. Popson Ave., Edwards AFB, CA 93524-8060, or send e-mail to: afftcc.em.com.rel@edwards.af.mil

Next RAB Meeting

Feb. 17, 2005

5:30 p.m.

Rosamond

Wanda Kirk Library

The public is invited.

Q. What is antifreeze? What should I do with antifreeze if I need to dispose of it? Where can I take it?

A. Antifreeze is a substance that is added to a solvent, such as water, to lower its freezing point. Antifreeze is typically added to water in the cooling system of an internal-combustion engine so that it can be cooled below the freezing point of pure water without freezing. Ethylene glycol is the most widely used automotive cooling-system antifreeze, although methanol, ethanol, isopropyl alcohol, and propylene glycol are also used.

Antifreeze is toxic to humans and animals. Waste antifreeze contains heavy metals such as lead, cadmium, and chromium in high enough levels to potentially make it a regulated hazardous waste, so most states strictly regulate antifreeze disposal. Antifreeze generators and state and local programs should not dump spent antifreeze on land or discharge it into a sanitary sewer, storm drain, ditch, dry well, or septic system. Dumping antifreeze can cause serious water quality problems and might harm people, pets, or wildlife.

If you live on base, you can take your used antifreeze to the Auto Hobby Shop. The used antifreeze that you take to the Auto Hobby Shop must not have any other chemicals commingled in it like radiator flush. If you have left over, unused antifreeze from replacing it in your vehicle, the base U-Fix-It will take it. In the workplace the industrial aspect of the base will have various accumulation points that will take used antifreeze. Contact your Unit Environmental Coordinator (UEC) if you have any questions.

If you live off base, check local listings for accumulation points, or contact your local recycling center or auto shop.

Recycling used antifreeze makes sense for two reasons: 1) It's cost-effective, and 2) It saves resources. Ethylene glycol, the primary active ingredient in antifreeze, is produced from natural gas, which is a finite, nonrenewable resource. For businesses that use a lot of antifreeze, like automobile repair shops, setting up an antifreeze recycling program can significantly reduce management costs and lessen the amount of new materials purchased. Using new technology, these businesses are recycling antifreeze on site and reconditioning it with the additives at a cost that is significantly lower than the cost of purchasing new antifreeze. ■

Report to Stakeholders is a publication of the Edwards AFB Environmental Management Division. Its purpose is to inform and educate the public, base workers and residents about continuing Environmental Management efforts at Edwards AFB. It currently has a circulation of 6,000, including about 2,000 subscribers.

Contents of the *Report to Stakeholders* are not necessarily the official view of, or endorsed by, the U.S. government, the Department of Defense, or the Department of the Air Force.



Commander 95th Air Base Wing..... Col. Drew D. Jeter
Base Civil Engineer..... James Judkins
Division Chief Environmental Management..... Robert Wood
Branch Chief Environmental Restoration..... David Steckel
Branch Chief Environmental Conservation..... Gerald Callahan
Branch Chief Environmental Quality..... Robert Shirley

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Report to STAKEHOLDERS



Mylar balloons and the environment

Mylar balloons' impact on the environment is mostly associated with the oceans. Mammals have been known to eat these types of balloons when they are floating on the surface of the ocean, and birds often become entangled in the strings that are attached to the balloons.

These balloons are made of Mylar – a heavy duty plastic – that has been aluminized to give the balloon its shininess. In the desert, the aluminized portion of the balloon eventually becomes brittle in the heat and falls off, but the Mylar remains in the environment for years.

"While I have found Mylar balloons in the desert at Edwards AFB with the aluminized area completely deteriorated, I have yet to see the Mylar portion even remotely gone," said Kathleen Davis, a contractor for

EM. "A lot of the times the weeds will shred them, but they can't destroy them."

Although animals can consume these types of balloons, none have been observed doing so at Edwards AFB. What is a concern is that the string oftentimes associated with both latex and Mylar balloons can get wrapped around birds' legs.

Because of these types of hazards, a California law requires all Mylar or foil balloons to be weighted down. You may find the California Balloon Law online at http://www.conwinonline.com/balloon_info/laws.asp.

Mylar balloons can also be a hazard when they come in contact with power lines. The aluminum that gives the balloon its shiny reflection, also sparks that electrical power line.

"Basically, the balloon itself can pose a

problem to people if it comes into contact with power lines – out goes the power. They pose a problem to the general environment because Mylar takes so long to biodegrade, and there is always the concern of a bird or another small animal becoming entangled in the string, as well as animals ingesting the balloon," Davis added.

However, there are also some environmentally beneficial uses of the Mylar product itself. You can find those benefits online at <http://en.wikipedia.org/wiki/Mylar>.

There are places that recycle Mylar, so contact your local recycling center to find out if they are able to take Mylar. If they can't, find out if they know any place that might. You can also check online.

There are also ways to reuse Mylar balloons as packaging material. ■

METEORITE: Sample taken to UCLA for further research

FROM page 1

could be something from a foundry, but then again, it looked more like a rock," Boyer said.

Because he was uncertain of its origin, Boyer placed the rock with other artifacts collected that day and took it back to the archeological lab to have a closer look when time permitted.

During most of the next year, the rock sat on a shelf collecting dust because other work, such as collecting, analyzing, and documenting historic and prehistoric artifacts gathered from around the base, took precedence.

When time permitted, Boyer examined the rock more closely. Under the magnification of a hand lens, the smoothed surface took on what Boyer said was a melted, bubbly appearance and had sand grains clinging to it. There were also cracks running through it.

He performed a few simple tests on the rock and discovered there was a slight magnetism to one side of the rock, and not the other. He also did a scratch test with the rock that showed it did not contain magnetite or hematite, two minerals that would explain the rock's heft and magnetism.

Both Boyer and Rick Norwood, the base archaeologist, thought they might have a meteorite, so they located Alan Rubin, Ph.D., a research geochemist at UCLA, who could confirm the find if they would send him a small piece of it.

Boyer learned one more thing about the rock before he sent a piece off for identification — he could hardly make a dent in it with a new hacksaw blade.

"It would have taken me a long time to saw a little piece of it off with that hacksaw. It would have worn my arm out," Boyer said.

He located a power tile saw with a diamond blade and cut off a piece a little larger than a quarter to send to Dr. Rubin.

Dr. Rubin identified the meteorite as ordinary chondrite — which comprises upwards of 80 percent of all meteorites — with both iron and olivine content.

Dr. Rubin said he intended to compare this meteorite with others found nearby — one found on base in 1940 and another found in the area in January 2003 — to see if they are all pieces of a larger meteorite that broke apart prior to impact with Earth.

The final disposition of the meteorite has not yet been determined, Boyer said, but the base is looking into sharing the stone to maximize its scientific value.

According to Norwood, it's a fairly common practice to slice a meteorite up, so several different entities can benefit from it.

"Besides, by slicing it up you can see its interior structure, which gives more information about how it was formed," Norwood said. "Where Barry (Boyer) made his cut, you can see little metal globules, shiny flecks, deposited throughout the meteorite."

A part of the meteorite may land at the California Mining and Mineral Museum in Mariposa, while another piece may go to the Smithsonian Institution, and another to UCLA. After that, the rest will likely remain on base. ■



MOHAVE GROUND SQUIRREL — Above is a picture of a Mohave ground squirrel. The notable difference between the Mohave ground squirrel and the white-tailed antelope squirrel is a white stripe, which is only present on an antelope squirrel.



RESEARCH — Certified wildlife biologist Bill Vanherweg — a subcontractor for Earth Tech, Inc. — is seen here with a Mohave ground squirrel. Vanherweg is one of a few in California who is permitted to conduct Mohave ground squirrel live trapping.

EM biologists count Mohave ground squirrel populations

The Mohave ground squirrel (*Spermophilus mohavensis*) is a California-listed threatened species.

Even though this animal resembles a chipmunk, it is actually a small six-inch long ground squirrel. This rarely seen animal can be found in creosote bush scrub and Joshua tree woodland plant communities in the western Mojave Desert, including portions of the Antelope Valley.

They are active aboveground primarily during the daytime in the spring and early summer months feeding and gathering plants and seeds. They may be confused with the more common and locally seen white-tailed antelope squirrel. White-tailed antelope squirrels are about the same size and occur in the same habitats. Both run with their tail tucked over their back showing the whitish fur on the underside of their tail, and both resemble a chipmunk in their appearance and behavior. The sides of the antelope squirrel show a definite white stripe, while the Mohave ground squirrel lacks a white stripe. If you look for the absence or presence of a white stripe on their body as they are running, you will be able to tell if it is a Mohave ground squirrel or antelope squirrel.

Since the Mohave ground squirrel is a state listed species, a permit is required to catch and release them. In addition, guidelines by the California Department of Fish and Game are followed.

The purpose of the study at Edwards AFB is to acquire more baseline data on where they occur on the base for future management and planning purposes. Since these animals are hard

to find, base biologists have to set up ways to monitor them for further protection of the animal and for research.

In 2004, EM biologists caught 20 Mohave ground squirrels. The animals are weighed and measured. Other data collected included whether the Mohave ground squirrels are juvenile, male or female. This spring biologists plan to do more trapping in other areas on the base.

Environmental Management is interested in the health of the desert ecosystem. Knowing where Mohave ground squirrel populations occur, their preferred plants within established territories, reproduction data, and juvenile dispersal (i.e., how the population is doing) are important key factors for EM to tackle regarding management of this species on base.

Two major threats to the Mohave ground squirrel are loss of habitat and urban development. Livestock overgrazing and off-road vehicle use has also contributed to habitat destruction. During multiple drought years when vegetation and seeds are scarce, the animals are hard to find and survival becomes more difficult. In damper years, it is easier to find Mohave ground squirrels if you know where to look.

As EM continues to search for these animals, new information will be used to address potential impacts from mission activities on the Mohave ground squirrel. As more information becomes known, EM will be able to predict where these animals are likely to occur and what steps are needed to protect the species and ensure continued mission activities. ■

Regulators and Air Force try to go after bigger risks

Initially proposed by the U.S. Environmental Protection Agency (EPA) as a way to aid the Air Force with budget constraints, risk management has helped in identifying between significant and insignificant risks to people and the environment.

Risk management involves federal regulatory agencies, state regulatory agencies, and government program managers from Edwards AFB. They use data, knowledge, and common sense to analyze the risk level of a site that may be contaminated.

By identifying sites that don't pose significant risks, the Environmental Restoration Program (ERP) is able to send funds to a site that registers a higher risk or begin cleanup on another site ahead of schedule.

"An added bonus of risk management is that it saves time on a lengthy Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process," said David Steckel, Environmental Management Division Restoration Branch chief. "It enables the base to stay on track with the Federal Facility Agreement, which provides deadlines for the cleanup of Edwards AFB's 471 sites."

The management of risk at Edwards AFB involves the U.S. EPA, the California EPA's Department of Toxic Substances Control, the Lahontan Regional Water Quality Control Board, the ERP managers, the contractor program managers, and other technical experts as needed.

Working together, this group of risk managers meet to determine a site's risk level by examining the history of contaminant releases, contaminant maps, site summary reports from the remedial investigation, human health risk assessment data, environmental risk assessment data, background metals concentrations and regulatory cleanup standards.

With all of this information, the group can distinguish between manmade and naturally occurring chemicals on site, analyze current and future land use plans, consider the environmental value of affected habitat and develop modeling projections of future contaminant migration.

Naturally occurring chemicals are the types of chemicals that are found in the environment. These may include metals in the soil, particulates in the air, and low levels of arsenic in the groundwater — organic substances that occur naturally and can be viewed as insignificant risks to human and environmental health.

A site's data is collected during the remedial investigation (RI) and risk management is used as a checkpoint to evaluate if the site should move on to the feasibility study (FS) where cleanup actions are proposed.

Determining the difference between significant and insignificant risks is not a random task. The group of risk managers reviews the information gathered from the RI and uses their knowledge of risk assessment data to pinpoint the necessity of the cleanup that is required at a site.

"Risk assessment techniques are designed to overestimate risk because of uncertainty in sampling methods, analytical methods, toxicity data, exposure assumptions, and health effects," Steckel said. "For example, the human health risk assessment equation used to calculate for exposure is a worst-case scenario, in which a person is assumed to be exposed to the contaminant by drinking, breathing, or touching the material 24 hours a day, seven days a week, and 365 days a year. Well aware of the parameters of uncertainty built into risk assessment data, the Edwards AFB ERP has the training to evaluate the findings and make a more accurate decision about a site's risk level."

"During the review process, if anyone in the Edwards AFB risk management group has a disagreement about the determination of a site's risk level, the site automatically progresses to the FS stage," Steckel said. "There must be unanimous consent among the Edwards AFB risk management group before a site can be categorized as having insignificant risk to people and the environment."

Risk management is a cost-efficient measure and not a cost-saving one. The ERP money given to Edwards AFB is only used for cleanup projects. By using risk management to identify the sites with significant risks, the funds will go to the sites that need it the most.

The ERP used investigative data to illustrate the insignificant risks of contaminants at certain sites by examining monitoring wells. Based on the investigative data findings at these wells, and with consensual agreement from federal and state regulators, the ERP was able to reduce groundwater monitoring by 30 percent and saved over \$1 million, which was put back into other remediation projects.

A good example of risk management principles at work on Edwards AFB is the groundwater monitoring reduction article in the September 2004 *Report to Stakeholders*.

Compliance moves from inspecting to consulting

A multitude of federal, state and local laws has long made environmental compliance the near exclusive arena of specialists. Yet, it has always been clear that the most important people to see that environmental compliance succeeds are not so much the specialists as everyone else in the workplace.

With that in mind, Edwards AFB transformed the Environmental Compliance program in 2004 so the people who are the most important in the compliance process have the greater role and more direct responsibility for it. The first two zones in the program — the Air Force Research Laboratory and South Base — began in late 2003.

The new program that emerged divides the base into seven support zones and assigns a group of knowledgeable Environmental Resource Specialists (ERS) to each of these zones. (See sidebar information, opposite page.)

The ERS staff serve as consultants, not as inspectors. In addition to understanding compliance issues, the ERS staff are familiar enough with the activities in their zones to respond

to compliance questions when they arise and train those who work in their zone on compliance as it applies to the jobs they routinely do.

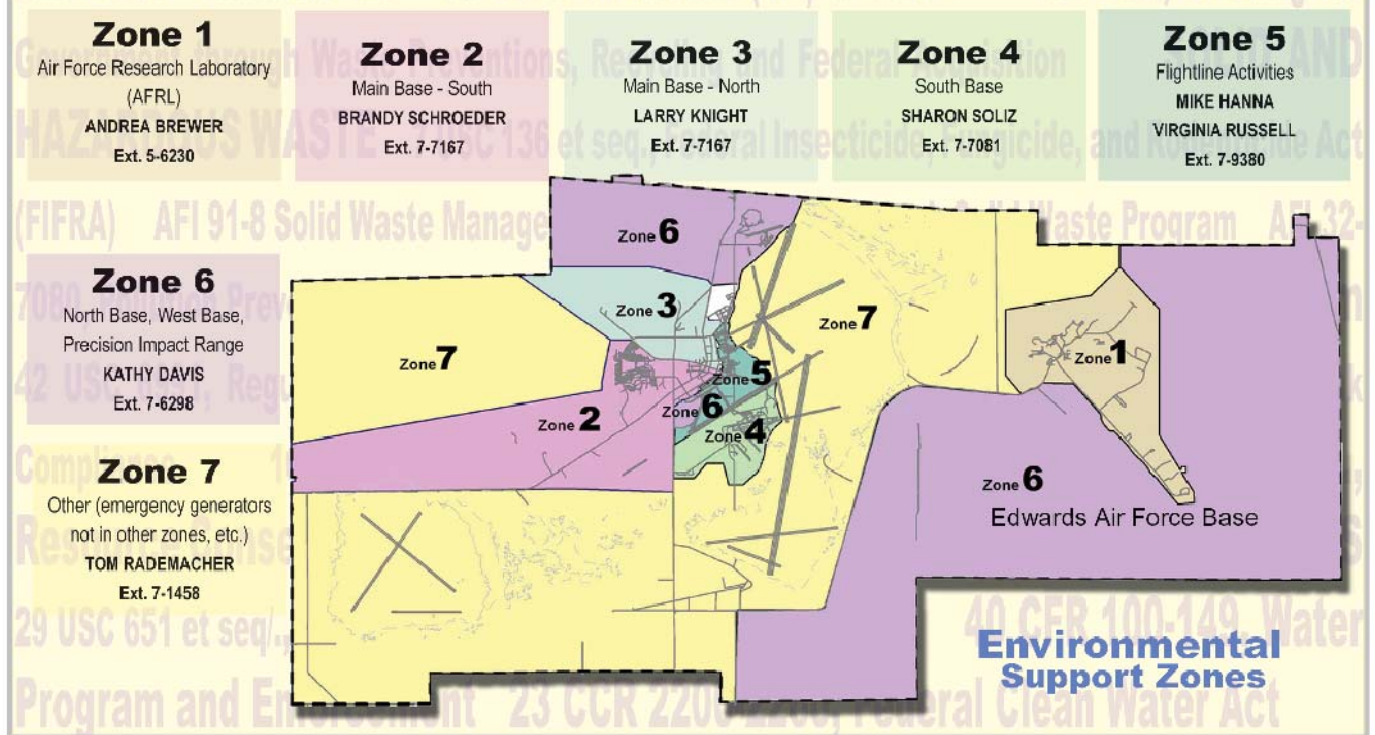
“The idea is to provide a point of contact from Environmental Management (EM) who understands an organization’s operational needs and who either knows or can quickly access all the expertise EM can provide,” EM Division Chief Robert Wood said.

This puts the responsibility for maintaining environmental compliance and seeing that its processes are seamlessly integrated into day-to-day operations squarely on the shoulders of people in the workplace. But, because environmental regulations are complex and compliance is not a choice, EM has retained an active role as specialists whose responsibilities are to advise, consult and train so that no one in the workforce is left without adequate information and support.

Those most affected by this change in roles and responsibilities are personnel working at the shop-level because they generally

Where's your support zone? Who's your expert?

Here's how to find your Support Zone and Environmental Resource Specialist (ERS)



are the ones who deal with hazardous chemicals — those requiring association with Material Safety Data Sheet (MSDS) information — and with the proper labeling, storage, and disposal of hazardous waste. But, environmental compliance is not simply a shop issue. It can crop up anywhere that environmental quality and human health are at stake.

Environmental compliance is based on a multitude of regulatory rules and guidance that were established by federal, state and local regulatory agencies to protect the environmental quality of air, water, natural and cultural resources, and the health of people. In order to prevent mission impacts, it is critical for the Air Force to minimize and eliminate the possibilities of a negative finding in these areas.

To ensure that environmental compliance as specified in Air Force Instructions, and legal codes is achieved, base organizations participate in compliance assessments and follow established protocols. These include a wide variety of tasks that range from identifying pollution prevention opportunities to obtaining appropriate environmental permits, to preparing for regulatory inspections.

New roles and responsibilities because Environmental Compliance is **EVERYONE's** responsibility

Why me? Why now?

In fact, everyone at Edwards Air Force Base has always been responsible for ensuring that environmental compliance never becomes an issue. What has changed is how that is done. Until recently, Environmental Management (EM) staff had direct responsibility for many aspects of environmental compliance such as inspecting, correcting, and repackaging the vast majority of hazardous waste generated at Edwards. These responsibilities have now been integrated into routine operations with EM staff serving as consultants for these and similar routine environmental activities.

What is the role of an Environmental Resource Specialist?

The Environmental Resource Specialist (ERS) has knowledge of regulatory drivers and guidance — the federal, state and local environmental laws that together comprise proper compliance. They serve as consultants for each organization on base and work to build awareness of multi-compliant issues in the workplace. Each ERS assigned to the seven Support Zones at Edwards AFB will work with the site supervisor or their designee, such as the Unit Environmental Coordinator (UEC), on a regular basis to maintain daily compliance.

ERS staff will:

- Help to ensure compliance on all protocols throughout the Support Zones they serve
- Provide consulting services rather than act as an inspector
- Provide a mechanism for continuous compliance process improvement
- Provide training on the spot
- Establish consultant interface between zone personnel and the full services of Edwards AFB's Environmental Management Division.

What compliance issue?

Think you don't have any environmental compliance issues? Think again ... or at least keep this in mind. If the chemical you've been using has a Material Safety Data Sheet (MSDS) label, its handling, storage, and disposal fall under environmental regulations. You might want to check with the Unit Environmental Coordinator (UEC) or the Environmental Resource Specialist (ERS) in your Support Zone to make sure you have a clear understanding of how to manage the chemical properly.